



NutriFlow

Sam Graler & Randy Hucker

Presentation Overview

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Project Introduction

Purpose

"NutriFlow is an AI-powered nutrition and grocery planning platform designed to help households get organized, make healthier food choices, save money, and reduce waste."

Get Organized

Create meal plans using an intuitive UI that prioritizes customization

Healthier Choices

Receive recommendations based on personal goals and nutrition targets

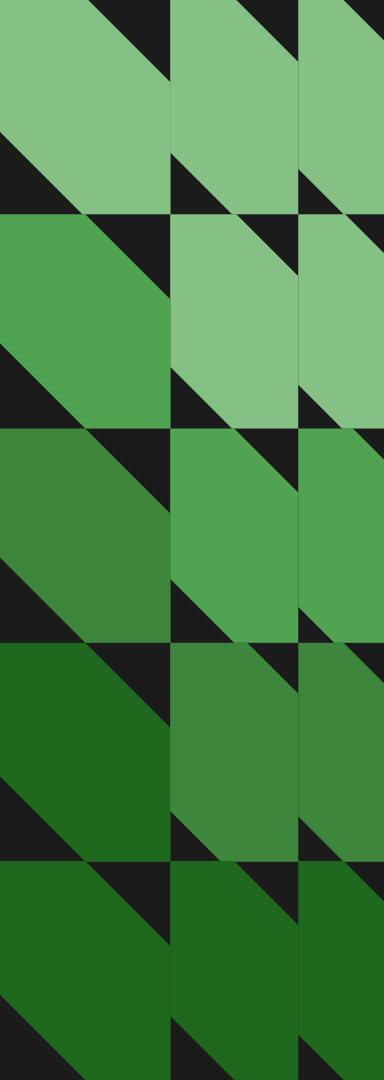
Save Money

Use Cart Management to track spending and discover more cost-effective options

Reduce Waste

Use Pantry Management to track food expiration/stock and avoid buying what you can't use





Goal Statements

- Simplify meal planning and grocery management
- Provide nutrition insights and personalized recommendations
- Minimize food waste and overspending



Team Members / Division of Work

Sam Graler

Product Manager/Full-Stack Developer
Email: gralersm@mail.uc.edu

- Cart & Pantry management algorithms
- API design
- Meal/intake views
- AI touchpoints
- QA testing

Randy Hucker

Lead Develop/Backend Architect
Email: randalhucker@gmail.com

- Backend data layer
- Database models
- Store integrations
- OCR ingestion
- AI touchpoints

Dr. William Hawkins

Faculty Advisor
hawkinwh@ucmail.uc.edu

- Advisement as needed

Task/Milestone ownership was divided equally between the engineers, although most tasks are handled jointly in some capacity



Project Abstract

NutriFlow is an intelligent meal planning and grocery management application that leverages AI to simplify nutrition tracking and household coordination. Users can build meal plans, manage pantries, and generate cost-optimized shopping carts that adapt to preferences and budgets.

By integrating grocery APIs, OCR receipt scanning, and data-driven recommendations, NutriFlow empowers users to eat healthier while saving time and reducing waste. Designed with privacy, inclusivity, and scalability in mind, NutriFlow combines modern web technologies with responsible AI to deliver a personalized and practical solution for everyday nutrition management.



Design Review



User Stories

As a household cook

I want to build a weekly meal plan to hit nutrition targets easily.

As a grocery shopper

I want NutriFlow to auto-create my cart and compare prices.

As a family member

I want to manage our shared pantry to avoid waste.





User Stories

As a fitness hobbyist

I want to log meals and see daily macro roll-ups.

As a user with allergies

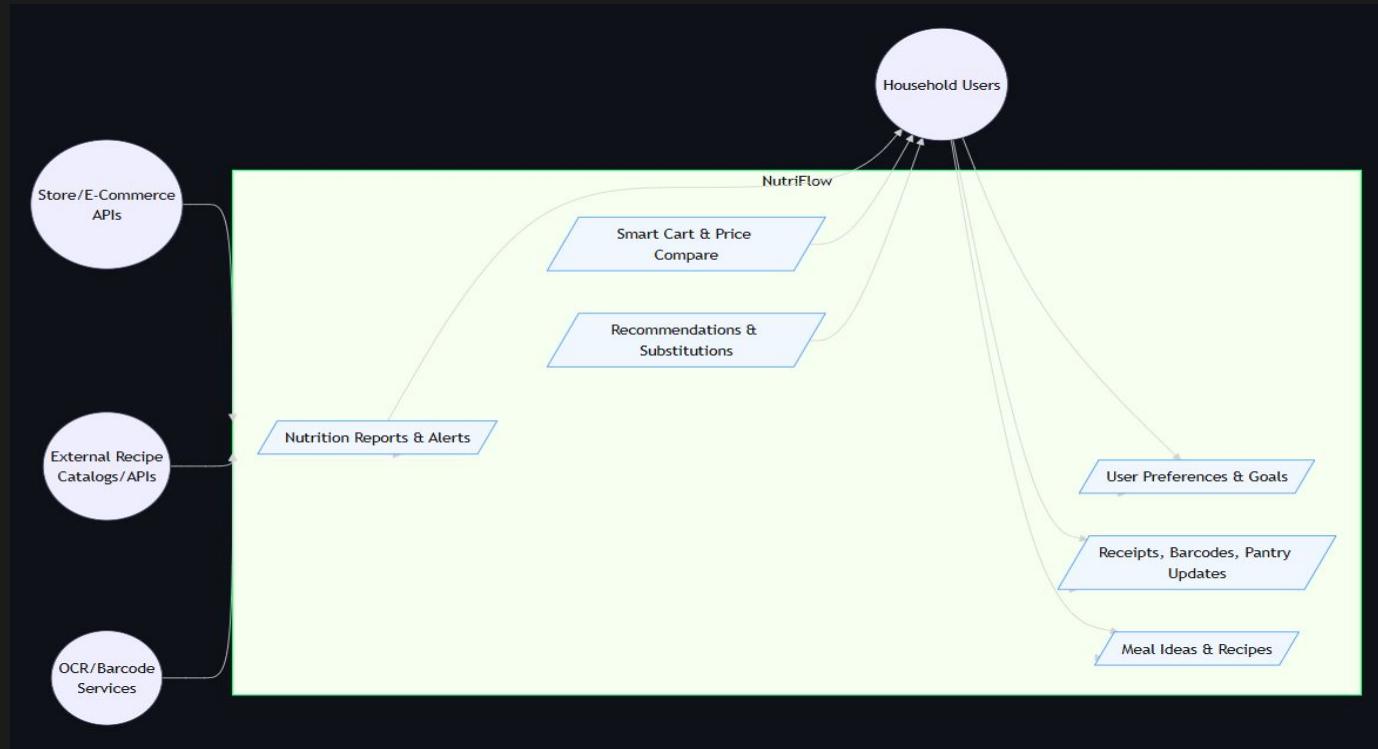
I want to filter ingredients by allergens and preferences.

As a foodie

I want to explore new recipes matching my diet.



Design Diagrams - D0

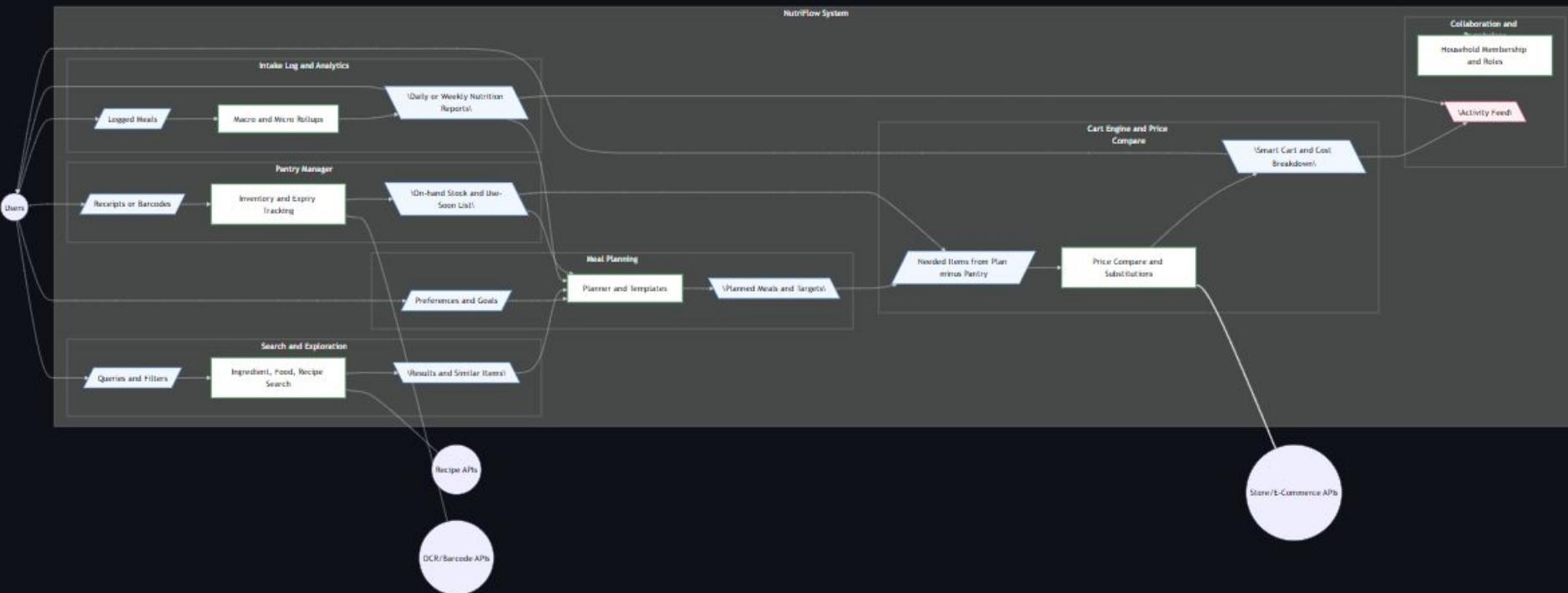


Interactive Diagram Link: https://github.com/randalhucker/nutriflow/blob/main/cs5001/assignment_4/Design_Diagram.md





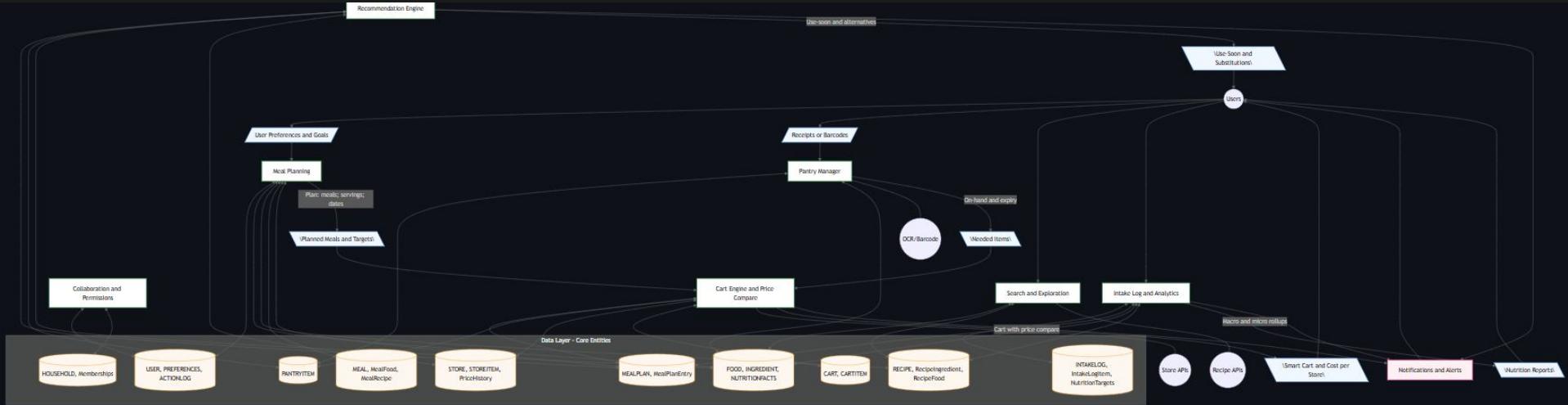
Design Diagrams - D1



Interactive Diagram Link: https://github.com/randalhucker/nutriflow/blob/main/cs5001/assignment_4/Design_Diagram.md



Design Diagrams - D2



Interactive Diagram Link: https://github.com/randalhucker/nutriflow/blob/main/cs5001/assignment_4/Design_Diagram.md





Major Constraints

Economic

No external funding;
Will need to rely on open-source tools and lightweight AI to avoid costs.

Security/Privacy

Protect user credentials and sensitive data;
Avoid persistent storage of sensitive data that isn't absolutely necessary.

Legal

Users may want to correct or delete their records;
Pursue alignment with GDPR, CCPA/CPRA privacy frameworks.

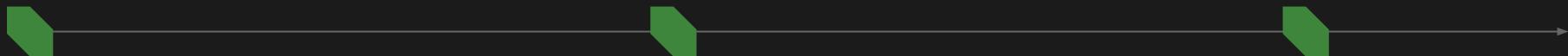
Diversity/Social

Present nutrition info responsibly;
Respect traditions, dietary restrictions, allergies and ED risk.



Future of NutriFlow

Current Progress



Brainstorming

- Product design
- Feature generation and prioritization
- Tentative frontend UI/UX Mocks (tentative)

Data Model Design

- ER models
- Canonical data types
- Preliminary database implementation

Early Prototyping

- Code repo established with necessary technologies
- Basic UI pages created (landing/login)
- Auth flow





Current Progress (initial UI mocks)

The screenshot displays the homepage of the NutriFlow website. At the top left is the NutriFlow logo, which includes a green circular icon with a white apple and the brand name "NutriFlow". The top navigation bar features links for "Features", "Vision", "Benefits", "Sign In", and a prominent green "Get Started" button. A central callout bubble reads "☆ Introducing the Future of Nutrition ☆". The main title "The Future of Nutrition Intelligence" is displayed in large, bold, dark blue and green letters. Below the title, a subtitle explains the platform's mission: "Transforming how we eat, shop, and live through **intelligent data collection**, **personalized recommendations**, and smart orchestration of your entire food ecosystem." At the bottom, two buttons are visible: a green "Get Started Free →" button and a white "Sign In" button.

NutriFlow

☆ Introducing the Future of Nutrition ☆

The Future of Nutrition Intelligence

Transforming how we eat, shop, and live through **intelligent data collection**, **personalized recommendations**, and smart orchestration of your entire food ecosystem.

Get Started Free →

Sign In

Current Progress (initial UI mocks)

 **NutriFlow**
AI Nutrition

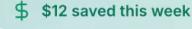
Recipe Search Meal Planner Cuisine Explorer Insights 

 Demo User
Standard Member

Welcome back, Demo User 

Your AI-powered nutrition insights are ready



\$ \$12 saved this week  2 lbs waste reduced

 Today's Nutrition

 57% Protein 68/120g	 90% Carbs 180/200g	 63% Vegetables 5/8g	 75% Healthy Fats 45/60g
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 Achievements

 Budget Chef 85%
 Nutrition Hero 72%
 Waste Warrior 90%

 Meal Suggestions For You



Current Progress (initial UI mocks)

← Back to Dashboard |  **Weekly Meal Planner**
Plan your meals and generate automatic grocery lists

 **3**
Meals Planned

 **\$53**
Total Cost

 **1225**
Total Calories

 **22**
Grocery Items

This Week's Meals

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast	Mediterran Quinoa... ⌚ 25m \$ \$ 6.99	+	+	Thai Green... ⌚ 30m \$ \$ 4.76	+	+	+
Lunch	+	Grilled Salmon... ⌚ 20m \$ \$ 10.21	+	+	+	+	+
Dinner	+	+	+	+	+	+	+

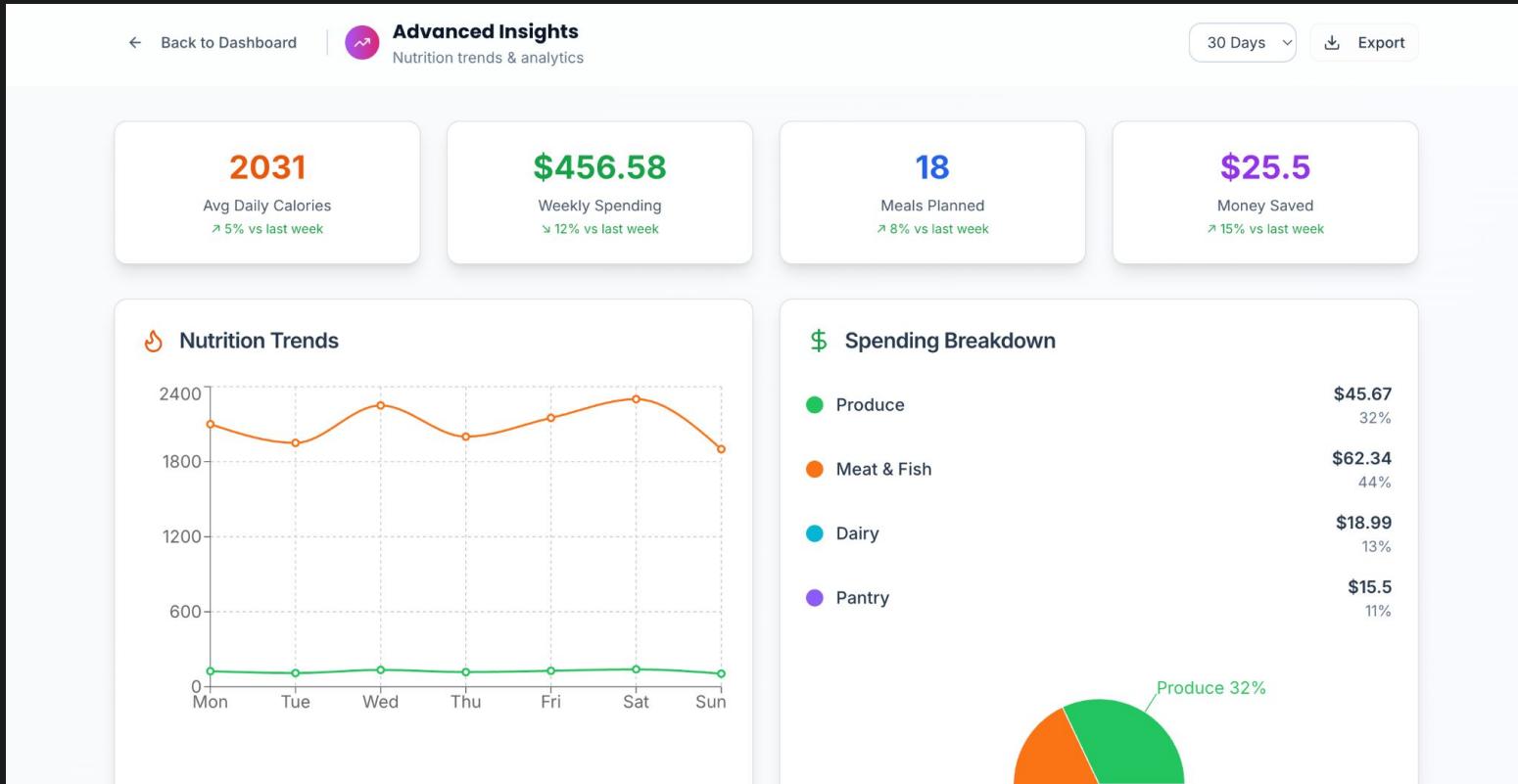
Grocery List

22 items

Feta Cheese 4 oz	\$3.99
Coconut Milk 1 can	\$2.49
Fish Sauce 2 tbsp	\$0.50
Brown Sugar 1 tbsp	\$0.10
Quinoa	



Current Progress (initial UI mocks)



Current Progress (initial UI mocks)

← Back to Dashboard |  Advanced Insights
Nutrition trends & analytics

30 Days  Export

Nutrition Goals Progress

Protein	68/120 g	Vegetables	5/8 servings
57% of daily goal		63% of daily goal	
Water	6/8 glasses	Fiber	28/35 g
75% of daily goal		80% of daily goal	

Meal Diversity

Asian	8 meals
Mediterranean	6 meals
American	4 meals
Mexican	3 meals
Italian	2 meals

Diversity Score: 85%
Great variety! Try adding more cuisines for bonus points.

This Week's Achievements

 Protein Goal Achieved
Hit your protein target 5 days in a row

 Hydration Hero
Drank 8+ glasses of water daily

Personalized Recommendations

 Boost Your Fiber
Try adding quinoa or chia seeds to your breakfast for 7g extra fiber daily.

 Optimize Your Budget
Shop at Aldi for produce - you could save \$8.50 weekly based on your...



Current Progress (initial UI mocks)

[← Back to Dashboard](#) | **Food Search**
Find nutrition info & recipes

Discover Food & Nutrition

Search for any food item, recipe, or upload an image to get detailed nutrition information and pricing.

Search for food items, recipes, or ingredients...

Upload Pantry/Receipt Image

All Produce Protein Grains Dairy Recipes

All Food Items & Recipes

14 items found

grains
\$4.99

protein
\$8.99

produce
\$1.99

dairy
\$3.49

Current Progress (initial UI mocks)

← Back to Dashboard |  **Smart Pantry**
Track freshness & reduce waste

 Scan Receipt  + Add Items

Total Items **8**

Expiring Soon **0**

Money Saved **\$157**

Eco Level  **Eco Champion**

 Search pantry items...

All Categories ▾ All Status ▾

 **8 items expired**
Consider using these items soon or composting them

 Bananas Produce Quantity: 6 pieces Expires: 44 days ago Added by Sarah Johnson	 Fresh Spinach Produce Quantity: 1 bag Expires: 45 days ago Added by Mike Johnson	 Greek Yogurt Dairy Quantity: 1 container Expires: 41 days ago Added by Emma Johnson	 Whole Grain Bread Bakery Quantity: 1 loaf Expires: 43 days ago Added by John Doe
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Current Progress (initial UI mocks)

The screenshot displays the Family Collaboration meal planning and shopping application interface.

Header: Back to Dashboard | Family Collaboration (Shared meal planning & shopping)

Family Members: The Johnson Family

- Sarah Johnson (Active) - sarah.johnson@email.com
- Mike Johnson (Active) - mike.johnson@email.com
- Emma Johnson (Active) - emma.johnson@email.com

This Week:

- 18 Shared Meals
- 3 Active Lists
- \$127 Shared Savings

Shared Meal Plans:

- Mediterranean Week (active, 2 hours ago) by Sarah Johnson (View Plan)
- 3 meals, 14 meals

Shared Shopping Lists:

- Weekend Grocery Run (Complete, 12/12) - Items completed, 3 members contributing (View List)

Expected Accomplishments (through end of Fall)

- Early Backend Prototype/API
 - CRUD for meal, cart, and pantry entities
- Pantry/Cart Management Algorithm Progress
 - Calculate groceries needed for meal plan factoring in current stock
- External Integration Progress
 - API discovery for at least one popular grocery chain (Kroger, Costco, Aldi, etc.)
 - Backup interaction design
- Basic OCR receipt ingestion
- Most UI pages created (may be very bare-bones)





Expected Demo at Expo

End-to-end Meal/Grocery Planning Workflow

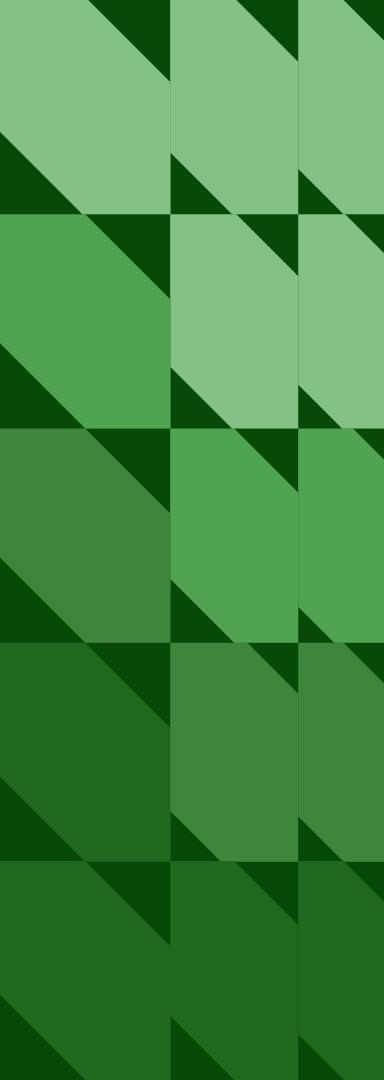
Meal plan → Pantry reconciliation → Cart generation → Price compare/Recommendations

Visual dashboards for nutrition insights and shopping optimization

Relevant AI/ML Touchpoints

Recommendation engine, nutrition analysis, etc.





Thank you